

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS — SOLAR DIVISION

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Volume 38

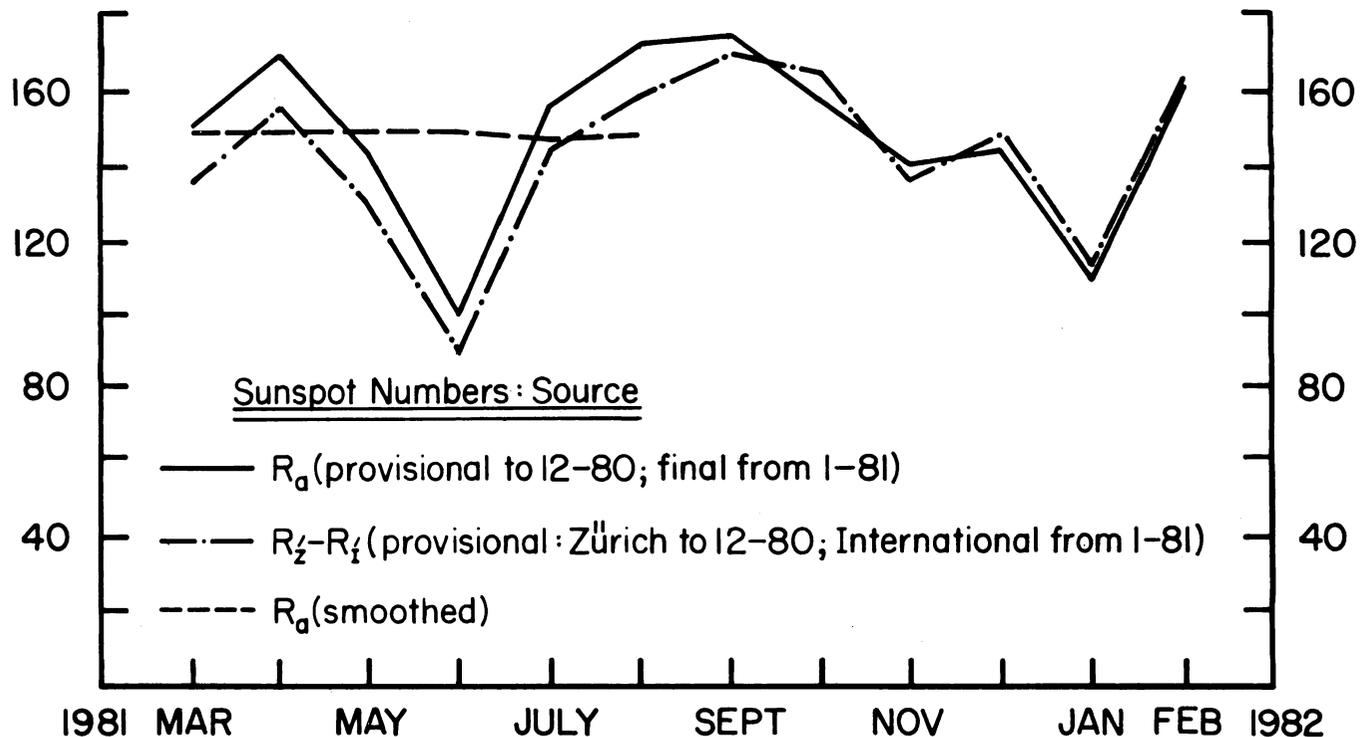
Number 2

February 1982

SOLAR ACTIVITY DURING FEBRUARY 1982

Detailed sunspot data are presented in the graph at the bottom of this page and in the table of sunspot numbers (R_a and R_T) by days on page 2. Overall sunspot numbers increased sharply during February 1982, with the monthly mean for AAVSO sunspot numbers rising from 110.4 in January to 161.0 in February. The smoothed mean (R_a) increased slightly to 146.8 for August 1981. Daily sunspot numbers varied less than in previous months. The high of 250 occurred on the 1st. The numbers then declined irregularly until a low of 99 was reached on the 22nd. During the first eight days of the month, numbers reached near-solar-maximum levels, with 18 to 22 groups visible each day, including several groups with 30+ to 60+ individual spots. From the 9th to the 22nd, the general decrease in numbers was interrupted on the 13th, 17th, and 20th by the appearance and development of medium-size groups (20+ individual spots). Activity began a gradual rise after the 22nd, as active regions of the previous rotation appeared around the limb.

Sudden Enhancements of VLF Signals (SESS) detected in February by the AAVSO Indirect Solar Flare Patrol increased to 184, nearly double the December-January level. Examination of the list of individual events on page 2 shows more SESSs in the first half of the month, most on the 3rd (17), 6th (13), and 9th (14). At least one SESS was observed each day of the month. Incidence of Importance 3 events increased to 17 from last month's 4, with Importance 4 events up from zero to 2. Frequency of SESSs paralleled sunspot numbers more closely than usual, suggesting the importance of new, active areas in producing the large numbers of both spots and flares.



SUDDEN IONOSPHERIC DISTURBANCES (SESS) RECORDED DURING FEBRUARY 1982

Records were received from Al, 9, 19, 26, 28, 31, 43, 48, 49, 50, 51, 52, 54, 55, 56, 57

Day	Max	Imp	Def	Observers	Day	Max	Imp	Def	Observers	Day	Max	Imp	Def	Observers
1	00:42	2	5	A31,43,55,56	8	12:55	1	5	A1,19,48,52,54	24	09:52	1	5	A52
1	03:48	1+	5	A43,55	8	14:10	1-	5	A1,26,28,52,54	24	14:56	1	5	A26,48,55,56
1	05:22	1	5	A31,43,55,56	8	17:26	1-	4	A19	24	15:55	1	5	A1,19,26,31,48,50,54,55,56
1	07:28	1	5	A55	8	19:04	2	5	A1,9,19,26,28,31,48,50,51,54,55,56	24	16:15	1-	5	A31,55
1	08:37	1-	5	A43,55,56	8	20:35	3	5	A1,9,19,26,31,51,55,56	24	16:38	1-	5	A19,31,48
1	14:08	3	5	A1,19,26,28,31,48,51,54	9	00:55	1-	5	A43,55,56	24	18:23	1-	5	A19,26,31,56
1	15:45	2	5	A1,19,28,31,48,51,54,55,56	9	01:46	1	5	A43,55,56	24	19:23	1-	5	A9,26,31,55,56
1	19:41	2	5	A9,19,31,48,54,55,56	9	03:44	1	5	A43,52,55,56	24	20:20	1-	5	A31
1	21:07	1-	5	A9,19,31,48,56	9	04:13	2+	5	A43,52,55,56	24	22:56	1	5	A56
2	05:32	1	5	A52	9	04:46	1	5	A43,52,55,56	25	07:28	1-	5	A52
2	08:52	1	5	A52	9	07:19	1	5	A31,43,52,56	25	16:11	1-	5	A1,26,31,51
2	14:24	3	5	A1,49,52,54	9	09:31	2+	5	A43,52,55,56	25	18:57	1	5	A26,31,55,56
2	16:54	1+	5	A31,56	9	11:16	1+	5	A52	26	03:32	2+	5	A31,52,56
2	18:07	1	5	A1,9,31,49,55,56	9	14:14	2	5	A1,19,49,54	26	08:37	1-	5	A52
2	18:53	2+	5	A1,9,19,31,49,55,56	9	17:15	2	5	A1,9,19,31,49,50,55	26	15:23	1-	5	A1,19,48,51
2	20:33	1-	5	A9,31,55,56	9	18:36	1-	5	A31,55	26	17:37	1-	5	A1,19,48
2	20:46	1+	5	A9,26,31,49,55,56	9	20:01	1-	5	A9,31,49,50,55	26	22:23	1	5	A9,50,55,56
2	22:02	1	5	A9,31,55,56	9	22:45	1-	4	A55,56	27	19:37	1-	5	A1,9,19,26,48,51,55
2	22:24	1-	5	A31,55,56	9	22:56	1-	4	A55,56	27	21:47	1	5	A9,31,55
2	23:10	2	5	A31,43,55,56	10	01:02	2	5	A31,43,55,56	28	05:00	1	5	A31,43,52,55,56
3	01:25	2+	5	A31,43,55,56	10	03:14	1-	5	A43,56	28	06:33	1-	5	A43,52,55,56
3	03:21	1+	5	A31,52,55,56	10	03:53	1-	5	A43	28	20:50	1	5	A1,9,19,26,55,56
3	05:45	1	5	A31,55	10	06:41	1+	5	A43,52					
3	06:36	1	5	A31,43,52,55,56	10	14:14	1-	5	A48,49					
3	07:07	1	5	A31,56	10	16:06	1-	5	A26,28,31,49,51					
3	18:22	1+	5	A31,43,52,55,56	10	17:05	1-	5	A31					
3	09:22	1+	5	A31,43,52,55,56	10	19:00	4	5	A1,19,26,28,31,48,49,51,55,56					
3	09:44	3+	5	A52										
3	12:00	1+	5	A52	10	20:02	3	5	A1,9,19,26,28,31,48,49,51,55,56					
3	13:28	1	5	A26,48,49,51,52,54										
3	15:32	1	5	A1,19,26,28,31,48,49,50,51,52,54	10	22:21	1	5	A31,55,56					
3	17:05	3+	5	A1,9,19,26,28,31,48,49,50,51,52,54,55,56	11	01:02	1	5	A43					
3	17:45	1+	5	A9,19,26,31,48,51,54,55,56	11	13:50	1	5	A28,48,54					
3	17:54	2	5	A1,9,19,31,48,51,55,56	11	16:15	1-	5	A1,19,26,28,48					
3	20:08	1	5	A31,55	11	18:39	1+	5	A19,26,31,48,51,54					
3	20:30	3+	5	A1,9,19,26,28,31,48,49,50,51,54,55,56	11	19:23	1-	5	A1,26,31,48,49,54					
3	21:33	1-	5	A9,31	11	20:37	1-	5	A1,26,31,48,51,54,55					
4	00:44	1-	5	A43,55,56	12	05:56	1-	5	A31,43,52					
4	06:12	2+	5	A43,52	12	17:15	1+	5	A1,19,26,31,48,50,51					
4	08:07	1	5	A52	12	18:58	1-	4	A31					
4	08:45	1-	5	A52	12	21:42	3	5	A1,9,19,26,31,48,50,51,54,55,56					
4	13:42	1+	5	A1,26,28,49,51,52,54	12	22:01	1	5	A31					
4	15:45	1-	5	A19,26,28,48,49,51,52,54	13	19:36	1-	5	A1,9,26,28,31,48,49,50,54,55					
4	17:23	1-	5	A1,19,26,31,48,49,51,54,55,56	13	21:00	2+	5	A1,9,19,26,31,48,49,50,51,54,55,56					
4	17:59	1-	5	A31,54,55,56	13	22:12	1+	5	A26,31,48,54,55					
4	18:26	1-	5	A1,19,26,28,31,48,49,51,54,55,56	14	00:46	1	5	A31,43,52,56					
4	19:09	3+	5	A1,19,26,28,31,48,49,51,54,55,56	14	03:47	1	5	A31,43,52,56					
4	20:44	2+	5	A1,19,26,28,31,48,49,51,54,55,56	14	05:34	1	5	A31,56					
5	01:30	1-	5	A43	14	08:16	1	5	A52					
5	09:14	2+	5	A31,43,52,55,56	14	09:42	2	5	A52					
5	15:53	1	4	A19,31,51,55	14	17:36	1-	5	A1,19,26,31,48,49,50,51					
5	16:43	3	5	A1,19,26,28,31,51,55,56	14	20:21	3+	5	A1,9,19,26,28,31,48,49,50,51,54,55,56					
5	18:03	1+	5	A1,19,26,28,31,48,51,54,55	14	23:15	1-	5	A31					
5	18:43	1+	5	A1,31,55,56	15	08:16	2	5	A52					
5	20:44	1-	5	A31,55,56	15	20:15	1-	5	A31					
5	23:05	1	5	A31	16	19:06	1	5	A1,9,31,49,50,55,56					
6	06:10	1+	5	A43,55,56	17	19:47	1-	5	A50					
6	07:58	1	5	A43,55,56	17	21:48	3	5	A9,31,48,50,54,55,56					
6	12:30	1-	5	A52	17	23:36	1-	5	A31,50,55,56					
6	13:34	1+	5	A1,19,28,48,49,52	18	00:41	1-	5	A31,43,55,56					
6	14:25	1-	5	A49,54	18	04:59	1+	5	A31,43,52,56					
6	15:34	1	5	A1,19,26,28,31,48,49,50,51,54	18	09:06	1	5	A43,52					
6	15:43	2	5	A1,19,28,31,48,49,51	18	13:23	1+	5	A1,48					
6	17:34	2+	5	A1,9,19,26,28,31,48,49,51,54,55	18	20:51	1	5	A31,55					
6	18:00	1-	5	A1,19,28,31,48,51,55,56	18	23:11	1-	5	A43,55,56					
6	18:23	1-	5	A1,9,19,26,28,31,48,55,56	18	23:42	3	5	A43,55,56					
6	19:53	1-	4	A31,55	19	05:00	1	5	A43,52					
6	21:03	3+	5	A1,9,19,26,28,31,48,49,50,51,54,55,56	19	06:05	1-	5	A52					
6	00:02	4	5	A31,43,55,56	19	19:11	1-	5	A31,55					
7	03:43	1	5	A43,52,56	19	19:18	1-	5	A31,55					
7	05:12	1-	5	A43,52	19	20:18	1-	5	A55					
7	08:10	1-	5	A43,52	20	07:35	1-	5	A52,56					
7	13:00	1+	5	A1,48,49,52,54	20	09:49	3	5	A31,52,55,56					
7	17:05	1	5	A19,31,55,56	20	17:30	1-	5	A1,19,26,31,48,50,51,56,57					
7	17:32	1-	4	A31,55	20	18:15	2+	5	A1,9,19,26,31,48,50,51,55,56,57					
7	21:06	3+	5	A1,9,19,26,28,31,48,49,50,51,54,55,56	21	01:45	2+	5	A31,43,56					
8	08:15	1	5	A43,52,55	21	19:00	1-	5	A9,26,31,49,55					
8	10:26	1+	5	A43,52	21	21:14	1	5	A9,31,54,55,56					
					22	16:30	1-	5	A31					
					22	16:54	1-	5	A31					
					23	03:30	1+	5	A31,52,56					
					23	05:23	1	5	A31,52,55,56					
					23	09:39	1+	5	A31,52					
					23	21:41	1	5	A56					
					23	22:33	1+	5	A31					
					24	07:00	3+	5	A31,43,52,55,56					

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RELATIVE SUNSPOT NUMBERS (R):			
AAVSO (a), INTERNATIONAL (I)			
Day	R _a	R _I	
1	250	258	
2	238	241	
3	231	232	
4	215	221	
5	222	219	
6	228	230	
7	238	226	
8	222	232	
9	204	211	
10	190	199	
11	157	158	
12	144	156	
13	158	162	
14	137	142	
15	126	134	
16	112	111	
17	115	120	
18	101	103	
19	108	107	
20	127	119	
21	121	120	
22	99	100	
23	100	97	
24	114	120	
25	125	115	
26	134	136	
27	147	140	
28	146	145	
Mean	161.0	162.6	